Notes from the 11/22/04 Tevatron BPM Upgrade Meeting
Stephen Wolbers

Preliminaries:

- The A3 crate is on schedule to be installed Tuesday morning, November 23. First beam expected Monday November 29 (or earlier if everything goes really well).

Rob Kutschke - Calibrations:

- Rob's slides can be found in AD doc #1451-v2.

- Rob's approach is to systematically examine the components of the system, how errors and/or changes affect the position measurement, and then to attack those areas that give the largest benefit (or the greatest error) and ignore or postpone dealing with those things that are small or difficult to calibrate/measure.

- First Rob discussed various scales of interest including cable differences (attenuation and phase), Echotek least bit, front-end gain, and time stability.

- The next topic was classes of effects which were grouped into three categories : Effects of beam species being measured, Effects of the other beam species and Instrumental effects. During the discussion we added bunch length and timing to the "Effects of beam species being mesaured".

- The discussion of the third class: "Instrumental Effects" took the remaining time. Briefly:

1. Mechanical effects. Measurements of the location of the BPM inside the quads exist (TM-1187) and it or some descendant is used in the current BPM. The "RMS width" of the offset is 0.025 inches.

2. Pickups to tunnel. Need to see if useful information exists here.

3. Cables from the tunnel to the service buildings. Measurements of cables exist. See later for a more detailed discussion.

4. Filters/filter board. 1 degree of phase difference is about 10 microns. So this is not a big effect to worry about. However, there is a question of what to do when a filter board is replaced. We agreed earlier this year that some sort of recalibration will be required in such a case (though we don't know yet what the procedure will be).

5. Echotek boards. The boards have different front-end gains. These are measured and have a standard deviation of about 1%. No procedure is in place yet to use these values.

6. Phase of 7/5 at start of measurement should not be an issue.

- The remainder of the meeting was a long discussion of the diagnostic signals and how we can use them for calibration (potentially), crate qualification before installation in the service buildings, and the current state of offsets in the TeV BPM system.

- The discussion will continue December 2.

AOB:

- No meeting Monday, November 29. Jim Steimel will be working with people on the A3 crate and we will have no formal meeting that day.

- We will meet Wednesday, November 24 (whoever is in town) to get updates on Echotek testing, board fabrication, etc.

- We will meet Wednesday, December 1 (status) and Thursday December 2 (calibration and Echotek/filtering updates).